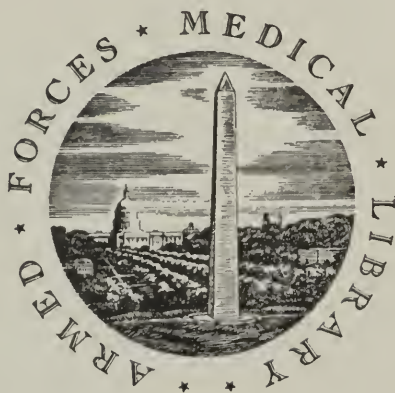




UNITED STATES OF AMERICA



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WASHINGTON, D.C.

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EXTRACTS  
FROM A REPORT  
OF THE  
MASSACHUSETTS MEDICAL SOCIETY,  
*RESPECTING A DISEASE*  
COMMONLY CALLED  
SPOTTED OR PETECHIAL FEVER,  
WHICH HAS WITHIN A FEW YEARS  
BEEN EPIDEMIC  
IN VARIOUS PARTS OF NEW-ENGLAND.

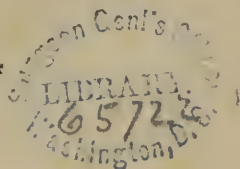
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Montreal.

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1812.



THE alarm excited the last Winter in the Eastern Townships of this Province in consequence of the prevalence of the Spotted or Petechical Fever, and the recent occurrence of several cases of the same disorder in this city; has induced the publishers to lay before the public, the following Extracts from a Report of a Committee of the Massachusetts Medical Society.

The extreme length of the original Communication has prevented us from republishing it entire; we have therefore selected such parts as <sup>we</sup> thought to be of the most general utility. Convinced of the importance of communicating to the public whatever might be deemed useful, relative to this subject, and as early as possible, we have given it in this form, which will be found to describe the general nature of the disease and the requisite mode of treating it.



## NATURAL HISTORY OF THE DISEASE.

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**T**HIS disease has been of various degrees of severity ; in a large proportion of cases very mild ; in some, severe, and in a few destroyed life suddenly, like the plague. The communications, which have been made to the committee, relate chiefly to the disease in its gravest forms. The history which they give must therefore be understood as relating mostly to the severe cases ; and they are not furnished with the means of making all the discriminations which could be wished. They are however informed that in the milder cases the symptoms differed only in degree, not in kind.

The invasion of the disease is generally sudden and violent. In its course all the functions of the body are more or less interrupted, and often some of them are entirely suspended. The subject of it is seized in the midst of his usual labour or occupation, and oftentimes is struck down suddenly, almost as by a stroke of lightning. The first symptoms are various, such as local pain or paralysis, delirium or coma, and rarely spasms or convulsions.

The disease often commences with shifting pains. The patients suddenly feel a pain in one joint or one limb, often in a finger or toe, in the side, stomach, back, neck, or head. Sometimes the sensation is like the stinging of a bee, frequently it is most excruciating pain, which at once arrests

and commands the whole attention. This pain moves from place to place without losing its violence, generally approaching the head, and is often confined to one side of the body. It is said that the left side is more frequently affected than the right. The head is more frequently first affected with pain than any other part ; and when not affected at the first moment, it almost invariably becomes so in a short time. The pain in the head is oftentimes intolerably severe, so that it is compared to the beating of hammers upon the part ; and the patient says he shall become crazy, if it continues.

Partial loss of sensibility and paralysis are, in other cases, the first symptoms, and often occur in the course of the disease, when they do not in the beginning. The powers of sight are affected in various degrees from a slight dimness to absolute blindness. In like manner the sensibility of the skin and parts subjacent is diminished, so that a limb becomes numb or feels as if it had been asleep. The other organs of sense have not been noticed to undergo similar affections. In the muscles of various parts, paralysis has been occasionally observed ; as in those of one hand or foot, and oftentimes in those subservient to deglutition. In some cases hemiplegia has occurred at the commencement ; and it is particularly worthy of remark that often the greatest weight of disease falls on one side of the body ; inasmuch that not only the voluntary muscles but the vascular system has been much more affected on one side than on the other.

Not very rarely the disease commences with delirium ; and very frequently this symptom follows a violent pain in the head in a very early stage of the disease. The delirium is often mild ; in some cases however, where it is attended

with flushed face and eyes, great heat in the head, and violent pulsation of the carotid arteries, it produces a fury, which is scarcely to be restrained. In a few instances the patient has become blind and raving within half an hour after the attack.

Stupor and coma, likewise convulsions and spasms occasionally attend the access of the disease ; but they are more frequent in its later stages.

In whatever form the disease commences, there suddenly ensues great prostration of strength. In some instances the patient is described as almost immediately falling down under the weight of disease. This prostration is accompanied or followed by universal or partial chills ; the skin becomes dry and pale, or mottled like one who has been long in the cold, eyes glassy, nose contracted, the face sallow, with paleness around the mouth, and the countenance expressive of the utmost anxiety and distress, or its features dissolved with a loss of all character and expression ; the whole body becomes cold, respiration very laborious, especially in children, pulses very small and feeble, slow at the commencement but shortly very frequent. If there be neither coma nor delirium, the spirits are very much dejected, the patient suffers extreme solicitude and anxiety, with apprehensions of death, frequent sighs, restlessness and agitation. He complains of oppression and faintness, with undescribable distress about the praecordia and a sensation of fullness at the stomach. Frequently eructation, nausea, and vomiting ensue, and also fainting in the early stages of the disease ; and the vomiting occasionally becomes incessant, embarrassing and defeating every effort to give relief by internal medicines, while it exhausts the patient.

The different stages of this disease and the duration of each are not very accurately distinguished by most of those, who have made communications to the committee. Doubtless this is because disaphoresis has commonly been established at an early period of the disease, which has been followed by a mitigation or a subsidence of the symptoms. How far this diaphoresis has been produced by art alone, and whether there be not a natural tendency to this termination, may be matter of doubt. It is generally represented as the effect of art ; but it is remarkable that the efforts for this purpose should have been very generally successful, if there is not any natural tendency to its production.

By some however it is noticed, that the symptoms of the first stage, such as have been described, become modified in the course of from eight to twenty-four hours. Within that period some have died. But ordinarily, except where the powers of life are too much exhausted, the symptoms of the second stage supervene. The pulses become more full and regular, the skin becomes warm, countenance flushed, and in plethoric subjects especially, even red and florid ; respiration short and very difficult from a sense of fullness in the lungs, but more regular than in the early periods of the disease ; eyelids swollen and eyes staring, with a throbbing pain in the head ; light distresses and noise irritates ; and great restlessness, general anxiety and frequently delirium ensue.

In a large proportion of cases these symptoms have all subsided, and the disease has terminated within three days ; often in one. Even in cases where the attack has been very violent, and the powers of life almost overwhelmed at first, the patient has so far recovered as to be very comfortable in

three or four days, suffering only a slight debility. In many cases, however, while the severity of the disease has abated, it has nevertheless continued under a milder aspect, and exhibited the less equivocal characters of typhus ; under which circumstances the termination has rarely been fatal. To this remark exceptions have been noticed in May, and the early part of June. Relapses have occurred in many instances with the same symptoms as in the original attacks ; they have rarely if ever been followed by death.

Among the varieties of the disease, the following is given as a description of some cases which have occurred especially among females. "Universal deadly coldness ; skin white as polished marble and smooth ; countenance perfectly placid ; not one distorted muscle ; pulse in the wrist imperceptible ; motion of the heart scarcely to be felt ; respiration visible only by gasping, and that not frequent ; and as it were only a step between this imperfect state of life and death." Even from this state of deadly stillness patients have been restored to life and health.

As has been already mentioned, some die in the early stages of this disease. A few are taken off suddenly in ten or twelve hours ; others in twenty-four, thirty-six, or forty-eight hours from the first symptom of the disorder. Death rarely occurs after the third day ; indeed some of those practitioners, who have been most conversant with the disease, consider their patients safe if they pass through the first twenty-four hours without any mortal symptoms.

The following is a description of the termination of the disease in cases, in which it was fatal within two days. After the symptoms of the second stage, as described above, have continued from six to ten hours, the skin becomes pale

and cold ; pulses very quick, small and irregular ; respiration less hurried, but very laborious ; countenance fallen ; the solids flaccid ; the petechial spots of dark color, violet or livid, suddenly appear on the superior extremities, and immediatly over the whole body. At length confusion of mind with constant drowsiness, inability to swallow, respiration more frequent and more laborious, with fluttering pulse, announce the immediate approach of death.

From the various descriptions of the disease which have been furnished them, the committee have endeavoured to give a general view of its symptoms, their course and order. Every symptom is not to be observed in every case ; on the contrary there is great variety in the symptoms, and it is said that there is great variety also in the order in which they occur.

In this general view it has been impossible to describe all the variety of affections with all their circumstances, such as are more or less frequently observed in this disease. It may therefore be useful to present the most important symptoms in an unconnected view ; and in doing this it may be necessary to repeat in some instances what has already been stated.

The face and eyelids are often swollen ; and in some cases the face is swollen and black like that of a person strangulated, The eyes are mostly described as being deprived of their natural lustre, dull and glassy, or red and watery, with the pupil, sometimes contracted, more frequently dilated. Sometimes the pupils are seen to vibrate from one extreme to the other. The eyes are also described as appearing more brilliant than usual, with a wild penetrating stare ; and it is said that this state of the eyes is sometimes

noticed several hours before the patient is aware of any morbid affection.

The sensations in the head are various ; such as dizziness, vertigo, pain ; throbbing, severe, excruciating pain ; and stricture across the forehead and eyes. These sensations are often followed and sometimes accompanied by delirium. The delirium has all the varieties observed in other acute diseases, from that which is mild and light, and indeed little else in coherence of ideas, to that which is low and muttering, or that which is violent with rage. Coma as well as delirium is of frequent occurrence, and is even more common in the late stages of severe cases. There are instances, especially in adult males, in which consciousness remains to the last unimpaired, although the issue be fatal.

There are also other symptoms which appertain to the animal system ;\* the following are particularly noticed. Numbness or total insensibility and paralysis in a larger or smaller portion of the body, which occur often in the first stage of the disease, and continue through its whole course, and even after other symptoms have subsided ;—a sense of lassitude and weariness ; soreness of the flesh, especially in children ; and spasms which frequently occur, and shift suddenly in the same manner as the pain does from part to part ; sometimes resembling hysteric spasms, sometimes occasioning the head to be drawn back as in opisthotonos.

The respiration is much and variously affected ; in general it is difficult. Cough rarely occurs, and the difficulty

\* This phrase is used in the sense given to it by Bichat—under this division he comprehends the brain, and its dependant organs—viz.—the nerves and voluntary muscles, so far as they are dependant on the brain.

of respiration has not commonly appeared to arise from an inflammation of the lungs. In two cases, however, symptoms of pneumonia have arisen, and in one of them the existence of that affection was demonstrated after death.\*

The actions of the heart are very feeble in this disease ; about its region that there are often very distressing sensations, described as death-like feelings. These sensations are occasionally relieved by spontaneous vomiting, and possibly they may have some connection with the gastric region. In a few mild cases the pulses are little altered ; but commonly they are very feeble, and except at the commencement, frequent. It is said that they sometimes denote more strength in the system than it is found to possess. They are sometimes hard ; more often they are intermittent, and irregular both in force and frequency ; they are remarkably variable, so that in the course of an hour, and indeed in much less time, they change from quick to slow, from strong to feeble, and vice versa ; at the accession of delirium early in the disease, they have been observed to undergo a sudden acceleration from sixty or seventy to one hundred and twenty, and even to one hundred and fifty in a minute. The pulsation of the carotids is often very considerably greater than that of the radial artery.

The phenomena of the skin have received considerable attention ; some of them have given to this disease its vulgar name. In the early stages the skin is perhaps invariably dry ; at a later period spontaneous sweats have broken out

\* These cases are specially noticed, because we are told that this disease has prevailed on the borders of Lake Champlain, in Vermont, and also in Montreal and its vicinity ; and that in those places it has been combined with pneumonic inflammation.

on the head, chest, and superior extremities. A doubt has been expressed whether universal sweating would not occur without aid of art. In a few cases which have occurred in Boston and its vicinity there has been observed a great tendency to this evacuation, and it has very readily become profuse. Doubtless there have been cases in which it was very difficult to excite diaphoresis, but in many it has been sufficient to put the patient in bed, and give him a cup of any warm liquid. The sweats are said to have an offensive and peculiar odour; it is fetid; but this does not seem to describe it sufficiently. It has been compared to the smell which arises from a dead rat within the wainscot of a room. It has also been compared to the smell of a mercurial fore mouth.

In many cases the skin is said to be remarkably smooth; but this is not an universal appearance.

The *spots* on the skin are of various descriptions. They occur in all stages of the disease; less frequently however on the first than on the subsequent days. Frequently a rash or miliary eruption only appears, or a few blotches on the inside of the elbow, and other similar parts: and it has been suggested that these may be produced by the mode of treatment usually adopted. The blotches are florid, or red and fiery. An appearance like measles has also been noticed, and likewise vesicles and pustules, which have been compared to the vaccine and variolous eruptions. In some cases these spots and eruptions have appeared at successive periods two or three times in the course of the disease. The vesicles and pustules are very frequently torn by scratching; after which or without being torn they are commonly followed by scabs of a brown color; but occasionally they are

followed by ulcerations which do not heal until after recovery. These affections of the skin are often attended with itching; and independent of them, itching very frequently occurs, especially on the third day, when the symptoms become more favourable at that time. This itching is sometimes extremely violent, so that the patient will almost tear up his skin in endeavouring to alleviate it. All these affections are frequently noticed at the time when the more important symptoms abate, or subside.

In a few instances, vesicles containing a bloody fluid occurred in the county of Worcester. These vesicles were compared to blood blisters, and were about the size of a large pea; they appeared in various parts of the body and limbs; in a few days they broke, discharged a bloody fluid, and scabbed over. In one case, in which the attack was very violent, blisters resembling those produced by cantharides appeared on the second and third day on the breast, and on one foot. They were about five inches in length, and nearly one in breadth. On the fourth day from the attack, some of those on the breast and that on the foot became black and dry, and the skin was sphacelated. The eschars with due treatment left clean ulcers, which healed without difficulty.

The appearance of petechiae and vibices has been noticed. They occur in comparatively few cases of the disease. They are of worse portent in proportion as they are more dark coloured. They do not however always occur in fatal cases, nor are they confined to such cases.

It is not easy to determine in how large a proportion of subjects the skin is affected with spots and eruptions. Under the observation of some gentlemen, they have been very

rare. One remarks that in eighty cases, among which twenty were very severe, he had seen only four instances in which spots or eruptions of any kind had taken place ; and he adds that these had not been the worst cases under his care. Another estimates the proportions of cases, in which there had been discovered some of the affections which we have described, to be two thirds of the whole. He includes, however, very slight affections, which have often disappeared in a few hours.

Desquamations of the cuticle, and more rarely œdematous swellings of the extremities, have occurred at the termination of the disease.

The tongue is usually moist and white through the whole disease, when it terminates within three or five days. When it continues longer, the tongue becomes darker coloured, yellow or brown. It is sometimes very clean and red.

There is seldom any remarkable thirst ; in a few cases it has not been at all greater than natural. Some patients have a desire for cold water, but not for any other liquid. The appetite is diminished, but it is not always so entirely destroyed as in most other acute diseases. Children particularly sometimes express a strong desire for food. Nor are the powers of digestion always suspended so entirely as in most other febrile diseases. Vomiting very frequently occurs, but in the first few weeks in which the disease prevailed, bile was very rarely thrown up. The matters ejected from the stomach were commonly the articles recently swallowed and a ropy mucus. Yet at all times there has been discharged by some persons a dark green liquid ; and in some instances a liquid of a blueish colour.

The bowels are commonly very quick, and are not readily excited to action, especially on the first days of the disease. When discharges are made from the bowels on those days, they are commonly of a dark, green colour, and to cursory observation resemble tar. It is said by one gentleman that the discharges from the stomach and bowels are rarely coloured by natural, healthy bile until the third day. In two cases we are told that dysentery supervened in an advanced stage of the disease; but it was of short duration. Patients sometimes complain of soreness of the throat; and on inspection, the fauces are found very red, but not swollen in any part. The sensation of soreness is often just below the fauces where the parts cannot be seen. Aphthae have been occasionally observed.

In most cases the urine has not been very different in its appearance from that in health, but the quantity has been less. Strangury has been ranked among the occasional symptoms; but a question may be permitted whether this has not been produced by the remedies employed.

There is an irregularity in the course of the symptoms in this disease, and so also in their duration. Blindness continues from half an hour to twenty hours; severe pain in the head, and delirium from four to twenty hours; deep coma from six to twelve hours, and even from the beginning to the end of the disease, especially in children.

In a few instances slight affection of the parotid glands have been observed, but in general, glandular swellings have not been noticed by our correspondents. In some cases swellings have occurred on the joints and limbs. These have been very sore to the touch, and their appearance has been compared to that of the gout. The parts so affected feel as

if they had been bruised. The swellings arise on the smaller as well as on the larger joints, and are often of a purple colour. Those on the small joints especially sometimes disappear as the disease approaches its crisis. It is not stated that the disease of the whole system ever subsides when these local affections take place. By some practitioners the inflammation in these cases is called erysipelatous, and probably with justice.

In a few instances purulent discharges from the ears have been noticed. They have not been accompanied by any remarkable change in the course of the disease. In a small number of cases the disease has been followed by deafness, from which the patients have not speedily recovered. Two persons were affected in this way in the year 1808 at Amherst, and their hearing has not yet been restored.

By some of our correspondents it is said that recovery from this disease has been rapid, and the subsequent state of health as good as usual. But the exceptions to these remarks are certainly numerous.

The attack of this disease has been described as sudden and violent; but there are cases in which the ordinary symptoms occur in a slight degree, and increase gradually for hours and even for two or three days before the disease becomes very serious. We may also add in this place that in some parts of the country there were many persons who exhibited some of the symptoms of the disease, such as local pain, and numbness, but who were not so much affected as to be confined.

In general our correspondents do not recognize this disease as having before occurred under their notice. Two gentlemen believe that they have in the course of many years

seen a few cases of the same character. Six or eight cases occurred in Amherst in 1808.

The replies to our questions respecting the diagnosis are not very full. It seems to be generally believed that the disease is to be distinguished only by attending to the combination and course of the symptoms. One gentleman states that the most general characteristics are "universal prostration of strength, and a depraved action of the sensitive organ."

It is very generally agreed that this disease is not contagious.

Neither very young infants nor aged persons have been so subject to this fever as persons in middle life. In one town nearly all those affected were between eighteen and thirty years of age ; but the same remark was made elsewhere. By some gentlemen it is remarked that females are more subject to the disease than males ; and this was true in Worcester, the only town from which we have received a list of the sick. Yet one gentleman states that it attacks more especially the most healthy and robust, male and female. Women in different stages of pregnancy have had severe attacks and have done well ; but they have not all been so fortunate. Blacks are not exempted from the disease.

To this part of our report, which with a few alterations is the same as it was when read to the counsellors at their meeting on the second of May, we have now to add ; that in cases of this disease which have occurred since the middle of April, as observed in Boston and Lancaster more particularly, some change has been noticed in the symptoms. Discharges of bile from the stomach, and foulness of the stomach and bowels, have become more common ; and so also have

hardness of the pulse and heat on the surface of the body. In many of these cases the bile has appeared in undue quantity and much altered in its character ; its consistence very thick and tenacious, and its colour dark. In several fatal cases at Lancaster, and in two not fatal, a dark matter was thrown up, which was called "black vomit." Whether this matter was the same called by that name in the autumnal fevers of warmer climates, the committee are not assured.

It appears also that in various parts of the commonwealth the common typhus is much more frequent than usual at this season of the year ; appearing in many instances with its ordinary symptoms ; but in others with a character more or less resembling the disease which we have described.

#### PROPORTION OF FATAL CASES.

Respecting the proportion of fatal cases, the committee have not the means of making any accurate statement. It would be very useful to obtain from each town in which the epidemic has appeared, the number of its inhabitants,—the length of time during which the disease has prevailed,—the number of persons who have been affected by it,—the number of those to whom it has proved fatal,—and the average number of deaths in the corresponding periods of other years. The committee will state as much as they have yet learned relative to this branch of the subject ; respecting which they have made some efforts to obtain more information.

At the first appearance of this disease in the county of Worcester, a very large proportion of those affected with it died at an early period of the disease. Since it has extended more widely, its violence has diminished, and the propor-

tion of deaths has become very small. So it is represented by our correspondents generally ; the following are the particulars given by several of them.

In 1808 the disease was seen at Amherst ; and of six cases three were fatal. In the present year at Cambridgeport, four persons died.\* At that place there were six severe cases, but a much larger number which were mild. Under the inspection of one physician in the county of Worcester there occurred two deaths in one hundred and thirty patients ; under that of another, one death in upwards of fifty patients ; and under another in the same county, one death in nearly one hundred patients.

In a statement of ninety-one cases in the town of Barre nine are marked as fatal. It is mentioned in the same statement that there were thirty-nine other cases, the issue of which is not mentioned ; but from some circumstances it may be inferred that none of them were fatal.

#### APPEARANCES AFTER DEATH.

The advantages, which arise from the examination of dead bodies, have been exceedingly conspicuous in the investigation of this disease. From this source have been obtained facts of great importance in illustrating the nature of the complaint, and pointing out the propriety of certain modes of treatment, which the symptoms indicated in a less distinct manner. It is a subject of regret that the examinations of those, who have fallen victims to this disease, have not been more general. All those, which have been carefully detailed, are subjoined. We have satisfactory reasons

\* One adult and three children ;—who were sick 17, 29, 30 and 42 hours.

to believe that the morbid appearances in these corresponded with those of some other cases, which have not been fully communicated. The cases here given have principally occurred in the neighbourhood of Boston, so that the committee are able to vouch for their accuracy. This is also established by the remarkable coincidence in the most important circumstances noticed.

We shall now give a general statement of the most common, and the remarkable morbid phenomena, leaving the comparative frequency of the particular appearances to be observed in the cases introduced hereafter.

#### EXTERNAL APPEARANCE.

Soon after the patient expires, and in some instances a short time before, the skin assumes a formidable livid colour. This appearance is either generally diffused over the skin, or else it exists in spots, commonly of an irregular form, but occasionally rounded. The lividity is more remarkable at first on the anterior parts of the subject, especially on the fore part of the face, neck and shoulders, than afterward; for it gradually subsides from these to the posterior parts of the trunk. Wherever the cuticle has been removed by vesication the skin is almost black and often covered by fluid blood. On the other hand the petechiae, which existed during life, become paler, vesicles or phlyctenae, eruptions and redness of the tunica conjunctiva disappear.

#### HEAD.

When the cranium is separated from the dura mater this membrane usually discharges a considerable quantity of blood. As soon as the dura mater is cut through, a quanti-

ty of ferous fluid commonly escapes from under it, and the whole surface between the dura mater and tunica arachnoides is found to be quite moist with the same fluid. This is not always transparent like water, but sometimes quite red coloured. The longitudinal sinus is filled with blood, and when wounded discharges a very great quantity of this fluid, which pours into it from the cerebral veins. Having raised the dura mater, we discover an extraordinary fullness of the veins on the surface of the brain, if the longitudinal sinus is still entire. This appearance however varies according to the duration of the disease. In those, who have perished within the space of twelve hours from the first invasion, the large blood vessels are excessively crowded, while in those of twenty-four hours continuance or longer the minute vessels are more distinct; and the other appearances, we are to describe, are more conspicuous, in proportion to the duration of the disease. The tunica arachnoides and the pia mater are remarkably altered in appearance by the effusion of an opaque substance between them, which may be called coagulated lymph, or semi-purulent lymph. This substance is frequently of the yellowish colour of pus, with a consistence between the tenacity of lymph and the fluidity of pus. At other times we see it possessed of the aspect of well characterized lymph. This effusion accompanies the course of the vessels very generally. In no instance of the duration above mentioned have we seen it wanting in this situation, while it is always very irregularly diffused in the other parts. The space between the thin membranes contains also a considerable quantity of ferous fluid. The two hemisphere of the brain adhere to the dura mater, near the longitudinal sinus, and to each other with so much strength,

as often to require a laceration or incision through the substance of the brain, in order to arrive at the corpus callosum. The medullary substance exhibits a great number of bloody points at the sections of the vessels, while the cortical part seems paler than usual. The lateral ventricles always contain a notable quantity of water. This varies of course. Sometimes these cavities may be seen greatly enlarged, and at others with not more than three or four times the quantity often found in healthy brains. The plexus choroides is often thicker and harder than natural, but always very pale from maceration in the effused water. The membrane attached to the plexus exhibits very considerable alterations from its healthy transparency to a state of morbid thickness and opacity. The membranes at the basis present the same appearances as at the vertex of the brain. A large quantity of serum is found there; and an effusion of coagulated lymph in mass has been witnessed in the same part.

#### THORAX.

The heart generally exhibits some appearance of disease. In every instance the small vessels on the surface of the organ are beautifully injected: the external coat is sometimes the seat of a deposition of lymph, and even the inner lining and valves are occasionally altered from their healthy texture. The right and left cavities usually contain a small quantity of black blood, quite similar in appearance and quantity; and even the aorta has been seen gorged with the same dark coloured fluid. The structure of the lungs is not commonly deranged. These organs are of a light and healthy colour on the fore part; while the posterior or lower parts are discoloured by the blood which sinks into them. Their

substance contains a very variable proportion of blood, dependant no doubt, on certain circumstances accompanying the cessation of life. It seems that when the lungs are full of blood the liver is flaccid, and when the lungs are empty the liver is large and turgid. In one case the cavity of the thorax was the seat of very considerable disease. The heart was inflamed and exhibited a large thick flake of yellow lymph on its anterior face. The pleura of the right side, both of the ribs and lungs was covered with the same substance, but more nearly approaching pus in its consistence; and the cavity of the pleura contained a very large quantity of half formed pus. The colour of the lungs externally was an ill-looking purple, and the pleura over them seemed to be shrivelled and adhered to the diaphragm. Their consistence was uniformly firm in this case, owing perhaps to the large quantity of blood they retained.

#### ABDOMEN.

The contents of this cavity have scarcely shown any marks of disease. Its opening is not attended with so unpleasant impressions on the organ of smell as in most other diseases. The coats of the stomach are generally free from the slightest morbid appearance; but in a single instance, the last, which occurred in the vicinity of Boston, the mucus coat was in a state of very uniform inflammation, and the veins were visible through the peritoneal covering. The contents of the stomach are not usually remarkable; yet they have sometimes a resemblance to coffee-grounds, or more nearly to brown soup; while in other cases they consist of greenish mucus; each without any offensive odour. The duodenum and the whole tract of small and large intestines are in

a healthy state. The latter commonly contain a considerable quantity of fecal matter. The liver and spleen are distended in very various degrees, as we have already intimated and are quite free of any morbid change, unless we except an extreme livid color. The gall bladder is generally full of bile, which is sometimes of a dark color and ropy consistence. The pancreas and kidneys present nothing extraordinary.

The bladder is commonly full of urine.

The muscular substance as well as all other parts, which are filled with and exhibit the color of the blood, is of a livid appearance, such as is not witnessed in other diseases. This fluid has therefore necessarily a very dark hue. It is commonly accumulated in the cerebral vessels; and is in moderate quantity in the venæ cavæ and cavities of the heart. After having flowed out it often coagulates. The coats of the blood vessels are not altered from their healthy state, if we except the change, which has been described as existing on the outer surface of the veins of the brain.

The latest period after death when any of these subjects has been examined was from twenty to twenty-four hours; at which time, there was a less offensive odor exhaled from the body than during life, and there were no signs of the commencement of putrefaction.

#### THE MODES OF TREATMENT WHICH HAVE BEEN ADOPTED, AND THEIR EFFECTS.

Those evacuations which are ordinarily made in the commencement of acute diseases have been thought hurtful in this. Blood-letting has not been frequently practised by the gentlemen, to whom we are indebted for communica-

tions. They have been deterred from this practice by the opinions they have entertained respecting the disease ; and by the reports of some of those, who had had previous opportunities of observation on the subject. Some cases however have occurred in which the lancet has been employed with benefit. These will be particularly noticed in the remarks which the committee will make on this head.

Cathartics have been thought injurious till the third day of the disease ; but enemmas have sometimes been administered on the second day, when specially indicated, without injury. In general emetics have also been thought injurious on the first and second days ; but in this respect the caution has not been so universally regarded. Especially in cases " where sickness at stomach has seemed to arise from a prior indisposition in that organ rather than from a morbid affection induced by the disease," it is said emetics have been found useful. It is said also that where the vomiting has been frequent, yet only white mucus and the liquids recently swallowed have been ejected, emetics have not afforded relief. When medicines of this description have been administered opium has been given afterwards.

The practice which has been by far the most generally pursued, and considered of primary importance, is to produce early and long continued sweating. In many cases, especially mild ones, this has been very easily effected ; in some severe cases it has been very difficult. The means which have been adopted for this purpose are very minutely detailed. The remedies are internal and external. The internal remedies employed have not generally been those now most commonly directed to produce diaphoresis in fevers, such as antimonials ; and which appear to excite the

capillary vessels without increasing the actions of the heart or large vessels either in force or frequency. Preparations of antimony particularly seem not to have been at all tried ; but ipecacuanha, which resembles in its operation the preparations of that mineral, has been employed very successfully by some in combination with opium.

In general the internal remedies administered in this disease with a view to produce sweating have been those called cordials. The external remedies have been warmth and moisture, and such articles of clothing as would more effectually confine both. The following is a summary of the directions commonly given on this subject.

The patient is first put into a warm bath, or his feet are bathed in warm water ; then, being well rubbed, he is to be laid in bed between blankets, and bed cloaths added in proportion to his sensations, or to his actual temperature when his sensibility is very much diminished. Around him are to be placed bottles of hot water, or billets of wood heated in boiling water and wrapped in flannel ; or he is to be wrapped in flannel wrung out of boiling water ; sinapisms are applied to the feet ; and he is to swallow frequently some warm liquid of the description given above, preferring to use the weakest which appears adequate to the particular circumstances of the case. The articles most commonly employed for this purpose are hot infusions of the leaves of mint, penny-royal, and other similar plants, wine-whey, wine and water, wine, brandy and other ardent spirits more or less diluted, camphor, sulphuric ether and opium. It is not generally thought useful to excite profuse sweating. To this there appears to be a very considerable tendency, when moisture is once produced on the skin ; and

some very judicious practitioners have thought it necessary to check this great evacuation by wiping and rubbing the skin with warm dry cloths. But it has been thought very important to maintain the perspiration in a moderate degree for a length of time proportioned to the severity of the case; that is from twenty to forty hours, and even longer in some instances. To maintain this process not only cordials, but nourishment is given, such as the patient's stomach can bear; which in many cases is strong soup.

Under this treatment most commonly the violent symptoms and not very rarely all the appearances of disease have subsided. When relief has thus been obtained the diaphoresis must not be suddenly checked, nor must the patient be hastily moved from his bed. The skin should be allowed to dry gradually, or if very much loaded with moisture should frequently be wiped and rubbed; but the patient should not be removed nor the bed cloaths shifted till the third day.

The administration of the articles mentioned has been regulated not merely with a view to promote diaphoresis. They are also thought necessary to excite the actions of the heart and large vessels and to produce warmth. In proportion to the necessity of the case, the strength and quantity of these articles have been increased or diminished. In many cases very mild cordials assisted by external heat and cloathing have been found sufficient to effect the purposes desired; in others the most bold and liberal use of the strongest cordials has been thought necessary; they have been borne in very large quantities, and it is said that life has appeared to depend on their effects. In administering medicines of this description the quantity has not been regarded; the practitioner has measured the use of them on-

ly by their effects. In cases of extreme coldness, great torpor and frequent vomiting ardent spirit has been given undiluted ; and when it would not remain on the stomach if given cold, it has been made hot. Under such circumstances a quart of brandy has been given in twelve hours. It should however be noticed that some of our correspondents who have been very conversant with the disease protest strongly against this liberal use of cordials ; and believe that much injury has been produced by them. In the lethargic state, which is, it is said " the death state of the disease, unless a speedy change be produced," tincture of opium has been thought eminently serviceable. In cases which have been thought desperate fifty to a hundred drops of this tincture administered every half hour " have almost invariably removed the lethargy." When deglutition has been rendered impossible by paralysis opium has been administered in enemata with the most salutary effects. In cases of spasms also opium has been given in large doses\* with the most happy consequences.

Arsenic has not been very much employed by our correspondents, and its effects are not particularly stated. In general if its use is mentioned, it is with approbation. Two gentlemen have administered the usual preparation of this article in the convalescent state, and they think it has been beneficial.

At the same time that cordials have been employed internally, and heat to the general surface of the body, cold water, snow, and ice have been applied to the head. These applications have been made, when there was violent pain

\* In one case a scruple was given in the course of three hours ; in another forty-two grains in forty-eight hours.

in that part with heat and flushed face, and when there was violent delirium. The cold applications have in these cases afforded great comfort to the patient, and have mitigated or removed those very important symptoms. Sulphuric ether dropped on the head and allowed to evaporate, has produced similar good effects.

Vesication on the back of the neck, or on the head, forehead, and temples has likewise been followed by most important good effects, not only in relieving the complaints about the head, but in abating other violent symptoms of the disease. Vesication over the stomach has been very successfully employed to check incessant vomiting ; and, generally, to remove the morbid irritability of that organ.

The bark of the officinal cinchona has been thought too slow in its operation to effect any change in the early movements of this disease, when severe ; but after the first danger has been over, that and similar remedies have been employed with some benefit. But preparations of iron\* have appeared to one gentleman to produce a better effect during convalescence than cinchona.

In some cases when apparently grown desperate, one gentleman found the warm bath a remedy of the highest value.

Preparations of quicksilver, particularly the submuriate, have been exhibited in this disease in the same manner, as they are given in this country in various other acute diseases. They have been more or less employed by various physicians ; but particularly by a gentleman at Worcester. Other articles, such as have been mentioned, were also administered by this gentlemen ; but where life was not immediately threatened these preparations were more particularly

\* This gentleman gave Griffith's myrrh mixture.

relied on. His mode has been to "administer diligently" from the beginning submuriate of quicksilver combined with camphor and ipecacuanha, and with so much opium as to prevent any powerful cathartic effects from the medicine. This mode has been pursued until a slight affection of the salivary system has been produced. The success attending this practice certainly was not exceeded by that of any other; and, while pursuing it, the very liberal use of cordials has not commonly been found necessary.

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THE committee have now reported every thing of importance relative to the disease lately epidemic in the county of Worcester and elsewhere within this commonwealth, so far as they have been able to obtain information on that subject. They will here add some brief notices

#### RESPECTING THE SAME DISEASE IN OTHER PLACES.

The appearance of this disease in the county of Worcester was not the commencement of its recent prevalence in our country. It is obviously the same which occurred in Medfield in 1806, of which an account was published among the *medical papers* of the society. It is unnecessary to recite the description there given.

Since the month of March 1807 the same disease has been epidemic in some parts of the state of Connecticut. In that month "it appeared in the city of Hartford, and soon after in the town of Windsor. From that time to the present it has made its appearance at various times in various places in the counties of Hartford and Litchfield. Cases have occurred in almost every month of the year; but it has gene-

rally been most prevalent in the last winter and the spring months. We are not sensible of any variation in the seasons sufficient to have given rise to this new form of disease. The winters preceding the spring of 1806—7, when the disease first appeared, had been, as usual of late years, open and mild. The winter of 1808—9 was unusually severe. The local situations of the towns, in which the disease has been most prevalent, are various. While some of them are situated upon the borders of rivulets, and and intersected by small streams never know to emit unhealthy vapours ; others are placed upon high hills and bleak ridges, and have been ranked among the most healthy in New England.\*” It appears that this disease has exhibited in Connecticut considerable variety of character in different places and in different years.

It would be interesting to notice all the circumstances observed there which have not been remarked in this state. But this report will not give room for such notices.

This disease is said to have prevailed during the present season in some parts of the of New-York and Vermont and of the province of Upper Canada. It is reported that in these two last mentioned places symptoms of pneumonic affection have in many cases attended the disease. The committee have not yet been able to obtain satisfactory information from those quarters.

\* An *inaugural dissertation* on the disease termed petechial, or spotted fever, by Nathan Strong, jun. of Hartford. Printed by Peter B. Gleason, 1810. The committee have derived their information respecting this epidemic in Connecticut from this dissertation, from a paper by Dr. Samuel Woodward published in the New York Medical Repository, and from the private letters of respectable physicians in that state.

## ON THE NAME AND CHARACTER OF THIS DISEASE.

THE committee now beg leave to make some remarks on the name and character of the disease, which is the subject of their report.

This disease has been called spotted or petechial\* fever. The name has been considered improper by most medical men, who have had occasion to remark upon the subject. It is however true that to similar epidemics, that is to epidemic fevers resembling this in the appearance of petechiae, the name of petechial fever has been given. Two opinions have been maintained on this head. The one that the petechiae are primary, or essential to the disease in the same manner as the eruptions in small pox and measles, to the diseases, which bear their names. The other opinion is that they are secondary, or symptomatic ; that they may or may not occur in various diseases, and that they are produced in consequence of some peculiar state, into which the system is brought not by any specific actions, but by actions common to various diseases.

The first opinion is adopted by Buserius, one of the most industrious and learned of compilers. He discusses the subject very fully,† and states the reasons for his opinion. Of

\* It is conjectured by Hoffman and others that this terra is derived from the Italian word *pedecchio*. But Buserius suggests that it may be derived from *pestis*, because these spots were first noticed in the plague. Buserius had traced back the history of these spots in Italy only to Fracastorius. But his suggestion derives considerable force from this circumstance ; that Ingrassia, who, according to Willan, noticed these spots in Italy a hundred years before Fracastorius, and probably before any one else, called them *pesticias*. Willan on cutaneous diseases, Vol. i. p. 470.

† Institutions of Medicine translated by Brown—Vol. iii. p. 226. Chapter on the Petechiae or petechial disease. His arguments are not here stated at large ; but the most important parts of them are given. See the work.

these the principal are, I. That, when petechiae prevail epidemically in any place, they are found on many persons without fever or any other preceding disease. II. That the disease has a great tendency to the skin, so that although in a few persons who have the fever they do not appear, yet that they do in the great majority of instances. III. That the fever has a great variety of character so that the petechiae be supposed to depend on the fever, but on the contrary the fever on the petechiae. IV. That the petechiae appear at various periods of the disease. V. That the eruption when perfect in its character gives relief, and "that in consequence of it alone, without any other sensible excretion, the disease is entirely resolved."

The committee have stated the opinion and reasons of Burserius, because they have not found any other author, who so decidedly adopts the first opinion, and engages so fully in its support as he does.

In answer to his first reason it may be stated that, although he quotes several writers in its support, the circumstance he mentions has not been noticed by many, who are considered the most eminent practical writers. That however petechiae may have appeared at those times without fever will not be denied, since they often appear at other times without fever, or certainly without any considerable fever. Such petechiae are described by the very accurate Willan;\* but he does not remark that they occur more frequently while fevers are epidemic which are accompanied by petechiae. So far as is known to the committee petechiae without fever have not been seen here during the late epidemic.

\* On cutaneous diseases Vol. i. p. 453. and following.

In answer to the second it is the remark of a large proportion of practical writers that petechiæ do not appear in nearly all the cases of those epidemics in which they are noticed. It is also remarked by most of these writers that the frequency of their appearance depends very much upon the treatment of the disease. Both these remarks appear to be confirmed by Willan.\*

The third reason or argument it is obvious may be stated with equal force on the other side ; inasmuch as petechiæ appear in fevers of a great variety of character. From various considerations we do not believe it can have any, certainly not much weight on either side ; but if any, the less in favour of the opinion of Burserius when taken in connection with his fourth reason. For by this it appears not only that the constitutional affection has not any peculiar character, but that the period, at which the spots appear, is exceedingly variable and uncertain. Although this may be true in some degree as to small-pox, measles, &c. it is not true of them at all in the same extent as Burserius states it to be with respect to petechiæ. Petechiæ may appear from the first to the eleventh day of the disease, and even later.

The fact which he states in his fifth and last reason is expressly denied by most practical writers on this subject, whom the committee have had an opportunity to consult.

Sennertus states that petechiæ are rarely critical ; or rarely appear at the time of the crisis ; but avers that they are commonly symptomatic. He believed that petechiæ belong to malignant fevers.† Riverius also states that they are

\* On purpura contagiosa.

† "Febres petechiales ad malignas pertineant." Opera—Vol. 2. p. 200. Lugduni 1650. His use of the term malignant may be learnt in his works—and will be noticed in a subsequent part of this report.

sometimes critical, sometimes symptomatic ;\* but does not say which character they most frequently bear. Burserius however makes a distinction, similar to that we have stated, between those which are primary and those which are critical ; for he considers both the critical and symptomatic, secondary ; and agreeably to this distinction it is obvious that neither Sennertus nor Riverius consider petechiæ in any case, as he does, primary.

Sydenham certainly did not know the petechial fever, as a specific disease ; and Bellini,<sup>1</sup> Fr. Hoffman,<sup>2</sup> Lientand,<sup>3</sup> Stoll,<sup>4</sup> Cullen,<sup>5</sup> Selle,<sup>6</sup> and many later writers of good reputation,<sup>7</sup> who have spoken of petechiæ, consider them not only as secondary, but mostly as symptomatic. Willan does not expressly discuss this question, as the nature of his work does not seem to require it ; but his opinion very obviously is that petechiæ are only symptomatic in the fevers in which they occur. He treats it as a point not contested, although he refers to Burserius.<sup>8</sup>

As regards the epidemic under our consideration the com-

\* Opera p. 450. Lugduni 1679.

<sup>1</sup> De urinis et pulsibus, de febribus, &c. Lugduni 1717.

<sup>2</sup> Hoffman treats of the true petechial fevers ; but he leaves no doubt as to his opinion in this point. "Exanthamata veteres generali denominatione has dicunt maculas. — Ab aliis autem exanthematibus præter figuram in eo discrepant, quod non modo sine omni ardore, sine pruritu, cutis elevatione, asperitate et exulceratione prodeant, sed et ut plurimum sine levamine." Med. Rat. Syst. Vol. 4 p. 258. Vened. 1730.—Itching has commonly been remarked here to accompany the eruption.

<sup>3</sup> Synopsis universæ praxeos medicæ. Vol. 1. p. 27. Paris, 1770.

<sup>4</sup> Aphorismi de febribus p. 151. Paris, anno sec. Reipub. Gall.

<sup>5</sup> Genera morborum. Also first Lines of the practice of Physic.

<sup>6</sup> Rudimenta Pyretologiae methodicæ pp. 177-8. Berolini 1789.

<sup>7</sup> See Parr's Med. Dict. one of the latest works of authority which we have.

<sup>8</sup> Willan states that petechiæ have been noticed not only in acute, but in various chronic diseases.. On cutaneous diseases, Vol. 1. p. 471.

mittee have adopted the second opinion stated above, viz. that the petechiæ are secondary, for the following reasons.

I. The cutaneous affections which occur in this disease are very various; such as red spots only, military eruptions, blotches, vesicles, pustules and rarely purpura or petechiæ.

II. In a very considerable proportion of cases there are not discovered either spots or eruptions. Indeed if we except some slight appearances on the inside of the elbow-joint, and in similar places, which very probably are to be attributed to sweating, such spots and eruptions are comparatively rare.

III. These spots and eruptions appear at very uncertain periods of the disease, and are of very uncertain duration.

IV. Although in some instances it has been remarked that relief accompanied the appearance of these spots and eruptions, this has not been noticed by the majority of those conversant with the disease.

It seems however to be true that in this disease there has been a tendency to increased action in the skin; which is evinced by the sweats,\* by the various spots and eruptions, and by the itching. This last has very often taken place at the crisis; and in general an increased and free action of the cutaneous vessels has been attended with relief to the internal and more noble organs.

In confirmation of the opinion we have adopted it may be added that in Connecticut "these spots, which in 1806-7 marked almost every case, in 1808-9 were rarely observed."†

\* Although the sweats may not have occurred spontaneously, yet in many cases when excited they have very readily become profuse.

† Strong's dissertation, p. 11.—That the disease there was the same which has occurred here will not be doubted on comparing our description with Strong's. We may remark that our's is drawn entirely from those of personal observers, and, though much like his, is not

What is this disease ? To this question the committee feel themselves bound to reply ; this they attempt with diffidence.

In this disease are discovered the symptoms of fever ; fever of Cullen ; fever as described by Dr. George Fordyce.\* These symptoms are disproportionate in different parts of the system ; and generally are seen most violent in the animal system, or in the brain and its dependant organs.† These symptoms are also said to be irregular in their course and order ; by which is meant that their course and order are neither the same in all the subjects of the disease, nor the same as in ordinary fevers.

To these remarks may be added that, agreeably to the statement heretofore given, there exists in this disease inflammation of the internal organs, particularly on the membranes, and especially within the cranium ; in the severe cases of the disease always within that cavity. Occasionally inflammation is also found on the membrane covering the heart, and lining the pericardium ; and less frequently on the pleura.

General inflammation combined with fever is noticed by Fordyce, and he describes the symptoms attending such combination. The principal symptom he mentions, as showing the existence of inflammation under these circumstances, is hardness of the pulse ; to which however he adds that blood drawn under proper precautions‡ is covered with a buff, or a coat of coagulable lymph without red particles.

copied from it in any particular. This remark we make that more confidence may be placed in the similarity which is noticed in the disease.

\* Dissertations on fever.

† See note page 9.

‡ The committee do not think it necessary to mention here these precautions, nor the explanation well known of this appearance called buff.

Hardness of the pulse and this appearance of the blood have not commonly been noticed in this disease ; particularly not in those persons, whose bodies have been examined after death. We may therefore infer that a combination of fever and inflammation, such as Fordyce has described, has not commonly existed in this disease.

The symptoms will perhaps authorise an opinion that the inflammation is erysipelatous.\* The appearances on examination after death do not disagree with this opinion. They do in some instances afford to it a strong confirmation. The substances of the diseased parts has not been found thickened, or carnified ; nor do the inflamed surfaces exhibit a bright color. The exudations are coagulable lymph, serous and purulent fluids. The lymph is not, as in phlegmonous inflammation, white and semitransparent ; but approaches to pus both in color and consistence. In case IX. in the thorax were exhibited all the circumstances here described. Now we are told by Mr. Hunter that when erysipelatous inflammation occurs in circumscribed cavities "it hardly produces adhesions, and when it suppurates the suppuration takes place first."† In confirmation it may be added that, when external inflammations occur in this disease, they are erysipelatous ; at least in most such cases.

The following then may be stated as general inferences.  
*This disease is fever combined with internal inflammation ; and the inflammation is commonly erysipelatous.* Yet this

\* Several of our correspondents have compared this disease to *cyranche maligna*, in which the inflammation is erysipelatous ; and this comparison they have made without appearing to have those views of the character of the disease which we now present.

† On the blood, inflammation, &c. Vol. I. p. 232. Philadelphia edition, 1796. See the whole section.

character of the inflammation applies to individual cases more or less perfectly. In some recent cases especially the inflammation has approached more nearly to the phlegmonous; and perhaps in none is it purely erysipelatous. It is frequently of a character intermediate between the two.

It is further to be remarked that this inflammation has been most constantly found within the cranium. Is inflammation in this cavity common to all cases of fever? This opinion has been entertained by some practitioners; and it has of late been particularly supported by two teachers of medicine.\* The positive evidence that such inflammation has often been found to have existed in cases of fever is very considerable. But the evidence that such inflammation is often wanting is irresistible.† It appears that inflammation has often been found in the other great cavities in subjects dead of fever, and not at the same time within the cranium. Sometimes it is found in one cavity only; sometimes in two of them at once, and at other times in all three. We well know that inflammation is often seen externally during fever. But in many cases of fever there has not been discovered any inflammation either during life, or after death. It is therefore proper to infer that fever, in the sense in which we use the term, is not dependent on inflammation. When the two diseases exist together they are to be considered as in combination, without having any necessary dependence on each other.

We are now led to this question. Have those fevers in which such inflammations occur been distinguished by any

\* Dr. Ploucquet, Professor of medicine in the university of Tübingen; and Dr. Clutterbuck, Lecturer in London. See Clutterbuck on fever; and for the doctrines of Ploucquet see Beddoes on fever as connected with inflammation.

† See Beddoes' researches.

peculiar character, so as to be specially denominated by professors of medicine? The committee believe that this question may be answered in the affirmative, and that the consideration of it will not be useless.

By inverting the terms we shall find an answer in an observation made by Baglivi. "*Quae nobis videntur malignae a viscerum phlegmone aut erysipelatode sunt.*"\* This is the sum of a doctrine, which subsequent observations and researches appear to have confirmed.

The term *malignant* has been very loosely applied; and its use has been justly reprobated by Sydenham and many others. Yet there is one description of fevers, to which it has been more peculiarly appropriated. It is true that the best writers are very often confused in the endeavor to distinguish pestilential, and putrid and malignant fevers. To engage in the consideration of all their distinctions and all their confusion would lead the committee too far from their object. They believe however it will be useful, in order to determine the true character of the epidemic under their consideration, and to compare it with diseases heretofore described, to point out those symptoms which have been considered evidences of malignity in fevers. They are the following:

I. Great disproportion in the violence of the symptoms, compared with each other.

II. Some peculiarity in the character of the symptoms when compared with those called by the same name, as they occur in ordinary diseases.

III. Remarkable imbecility, and prostration of all the powers of the body, or of certain of them, without any

\* Opera—p. 51.

manifest cause ; occurring at the very commencement of the disease, or after it has continued a few days with mild symptoms.

IV. Pains in any or every part of the body, sometimes fixed, but often shifting ; in the limbs severe, as if they had been bruised or broken ; with tossing and twisting.

V. Extreme pain in the head ; the greatest solicitude and perturbation of mind, watching and delirium ; or stupor, coma and lethargy. Imagination very much disturbed and memory weakened.

VI. The countenance very much altered, losing its usual spirit and expression ; sometimes entirely natural. Face often livid and leaden coloured.

VII. Eyes red, or dull and cloudy ; dimness of sight and blindness. Ringing and hissing in the ears ; deafness. Taste and smell depraved.

VIII. Tongue rough, dry and dark ; mouth bitter ; sometimes with insatiable thirst, sometimes without any.

IX. Pulse frequent, small, weak ; even in beginning extremely small and frequent ;\* variable and intermittent.

X. Heat sometimes great, but oftener less than in other febrile affections. Extremities often very cold.

XI. Urine similar to that in health, especially in the first days of the disease ; sometimes thin, without sediment ; or if there be any sediment it is often dark coloured, more like an excrementitious substance than like the usual sediment.

XII. Matters discharged from the stomach and bowels often livid, black or green, or otherwise unnatural.

XIII. Scanty and frequent sweats about the forehead and neck only ; sometimes profuse over the whole body.

\* Est etiam interdum in hujus febris initio pulsus formicanti similis, minimus et frequentissimus. Sennertus.

XIV. Red, livid, ash-coloured and black spots on the neck, back, breast, arms and legs ; various pustules ; carbuncles, parotids and buboes, which last do not readily suppurate.

This description is taken from the works of Sennertus\* and Riverius, medical writers of distinguished reputation in the sixteenth and seventeenth centuries. Subsequent writers agree in the same, especially Bellini and Fred. Hoffman. One character however which they all give to this fever is that it is contagious. In this respect certainly our epidemic does not accord with their description ; but it is well known how imperfectly this subject of contagion has been understood ; and indeed how imperfectly it is understood by many writers at the present day.

The committee are unwilling to multiply references any farther than is necessary to establish the character of those fevers which have been most distinctly considered as malignant. This character does not seem to have been clearly distinguished by many modern writers. It has however been particularly recognized by Selle in his *Rudimenta Pyretologiae Methodicae* ; and perhaps more distinctly by Pinel. The former comprehends fevers of this description under an order in which he denominates them *febres atactae* ; the latter adopting the same term calls them in this own language *fevres ataxiques ou malignes*. These are comprehended in his nosological system under the fifth order of primitive fevers. The epithet which Selle substituted for malignant, and which is adopted by the French professor,

\* Sennertus terminates his description in these words. Et ut hæc concludamus, nihil fere mali est, quod non interdum in hisce febribus appareat ; ac quò magis extrà omnia tuta apparent, eò magis intus omnia sunt turbata et mutata. Op. Vol. 2. p. 185.

expresses that the leading character of the diseases under that order is irregularity. One short description of ataxic fevers is this ; " fevers distinguished by anomalous and irregular affections of the nervous system, occasioned by any cause either moral or physical which affects the nervous principle,"\* Another is the following ; " The true character of the fever of this order is to present a continual aberration and perversion of the sensibility, which appears at one time destroyed, at another exalted to the highest degree ; and of which the alteration is manifested by nervous symptoms, that vary incessantly, succeed each other and alternate without any fixed order, and proceed in a manner the most incoherent."†

The committee will not engage the attention of the counsellors in inquiring to which of the genera of Pinel's order of ataxic fevers our epidemic belongs ; whether all the individual cases may be distributed among those genera, or whether a new genus must be constituted. They have been led incidentally into some nosological inquiries, or into a consideration of names ; but these inquiries and considerations have not been their ultimate object. This object has been to show by what symptoms the disease called *malignant fever* has been known ; and, although diseases have many times been called malignant without proper discrimination,

\* Dictionnaire de medecine par—Jos. Capuron.

† This description is taken from a note by Renaudin, in his translation from the German to the French of Dressing's treatise upon diagnostics. p. 21. The committee regret the impossibility of procuring Pinel's nosography, where no doubt they would find his definition exactly laid down. They have acquired the knowledge of his system only from his *medecine clinique*, and from the writings of some of his pupils.

that the epithet has by some of the best practitioners been appropriated to those of a certain description.

It appears then that the leading circumstances, which distinguish such fevers, are the following ; viz. great prostration of strength ; affections of all those functions belonging to, or immediately connected with the brain ; and great irregularity in the symptoms, their course and order.

The committee proceed now to inquire whether experience has confirmed the observation of Baglivi ; that is, whether it has been found that inflammation of the internal viscera is combined with fever in those cases, where fever has the characters above mentioned.

The appearances after death in subjects of fever have been much more regarded by the Germans and French, than among the English and Americans. But the works of the writers on the continent of Europe are not very commonly found in this country ; and many of them, which might be consulted with great advantage, are not in our hands. For this however we are in some measure compensated by two recent publications in England, to which we have already referred ; an inquiry into the seat and nature of fever by Clutterbuck, and researches concerning fever as connected with inflammation by Beddoes. The former of these writers, endeavouring to show that fever was dependent on inflammation within the cranium, gives us many observations in confirmation of this opinion. Beddoes has many more observations industriously collected from very extensive reading, in which he shows inflammation in various parts of the body to be combined with fever ; and also others in which no such inflammation was discovered. Neither of these writers certainly had any idea of shewing

that it is especially in fever of the description called malignant that such inflammations are found. But it is impossible to look into their works with this idea in the mind, and not be struck with the evidences, which are furnished by them of its truth. In some cases of such inflammation the nature of the disease is not mentioned; but wherever it is mentioned, or wherever the history of the disease is given, it is found to belong to Pinel's order of *fièvres ataxiques ou malignes*. The committee might here introduce the various evidences to which they refer; but this would be to extract the most valuable parts of the books they have mentioned. To those books therefore they beg to call the attention of the counsellors.\* In addition to the evidence

\* See Clutterbuck on fever Vol. I. p. 168.—The following remarks may be made on his references.

Boneti Sepulchret. lib. IV. Sect. i. Obs. 34. the cases are not sufficiently detailed to determine the character of the diseases. Obs. 44. first case is somewhat detailed;—it is intermittent, and certainly ataxic. The head was diseased. Second case is taken from the same author, *Pisa*. He says the symptoms were the same, and so were the appearances on dissection.

Morgagni de causis et sedibus—Epis. 4, 6, 7, 8. are referred to generally as containing cases of fever, in which the brain or its membranes were diseased.

Epist. iv. art. 6. 9. 26. are cases of fever clearly ataxic—Morgagni expressly mentions respecting the 9th, that it was malignant. In each the brain was diseased, although other organs were more so in the 26th. Epist. vi. art. 2 and 3. and 8. two cases evidently ataxic; brain diseased. Respecting the case in art. 8. Morgagni remarks that the inflammation was erysipelatous; the appearances were almost precisely such, as have been discovered in the cases here. Same epistle art. 4 and 6. contain cases probably ataxic. In the one was found sanious matter in the tympanum—in the other brain diseased. Epist. vii. art. 2. ataxic fever; brain diseased. Other cases in the same epistles might be noticed, but they are not clearly stated so as to shew what was the kind of fever, although the brain was found diseased. There are also here and elsewhere cases of ataxic fever, in which other viscera were found diseased.

That this note may not be too long we only add that Clutterbuck refers also to Lieutaud, Werlhoff, Mangetus, Haller, Pringle, Donald Monro, Vogel, Chambon, Baillie, and Jackson, as stating that the brain has been frequently found diseased in those who have died of

furnished by those writers they will add only the following. This is such as tends to shew that in malignant fever inflammation occurs in the parts within the cranium.

Pinel in his *medicine clinique* gives twenty-eight cases of ataxic fever, and forty-nine cases of fevers of different characters. Nineteen cases of ataxic fever terminated fatally and fourteen of the bodies were examined. Nine of the other cases were fatal and five were examined. Of the fourteen in every one there were diseased appearances within the cranium precisely similar to those discovered here ; of the five not one had similar appearances, nor any other appearances of disease within the cranium. This too conforms to Pinel's general remarks on the same subject ; and is supported by further evidence in a dissertation "*sur les fievres ataxique sporadique et adynamique continue, &c. par. A. B. Deffains,*" a pupil of Pinel. In four cases, the only ones examined, the appearances corresponded exactly with our's. The account, which is published among the papers of the Society of a fever at Geneva, shew that that disease was the same which has prevailed here. It is there said that on examination after death the blood vessels of the brain were turgid ; but that in other respects both the brain and the other viscera were found natural. Beddoes gives an abstract of another account of the same epidemic by Dr. Matthè. According to his account the same congestion only was found in three children, who died of this disease

fever ; but it appears that four of them confine this remark expressly to malignant fever ; one to petechial fever, one to typhus, and one to yellow fever, probably all of them ataxic.

In a very large proportion of the cases collected by Beddoes in which the brain was found diseased, the fevers were ataxic. He also gives some cases of similar fevers in which other viscera were diseased.

in less than twenty-four hours. But he reports also that in an adult, who died on the sixth day, the following changes had occurred in the brain; viz. "vessels of the meninges strongly infarcted, a bloody-gelatinous fluid spread over the whole brain, liquid in the ventricles, choroid plexus deep red; at the posterior part of the lobes and interiorly puriform matter without alteration of the texture of the brain; the same at the thalamus nervorum opticorum and extending along these nerves and an inch into the cavity of the spine; cerebellum very soft."

At Medfield also there was noticed, in three cases only, turgescence of the cerebral vessels; but in two other cases, more obvious proofs of disease within the cranium were discovered. In like manner in case XIV. which occurred at Charlestown, turgescence of the veins only was discovered on examining the brain. But in this case, in those similar at Medfield, and in most of those at Geneva, the disease had not continued twenty-four hours. Now it is not straining the facts too far, when the whole are taken in connection to believe that in these cases inflammation had commenced, although there had not yet occurred any such organic effects as to demonstrate this perfectly.

There is indeed another explanation of the state of some, who have died thus suddenly and in whom there has been found only distension of the cerebral vessels; this is that they are apoplectic, or die from the sudden pressure on the brain. The appearances during life in some of these cases accord with this explanation. The symptoms in case XIV. and in many others, were very strikingly similar to those of apoplexy.

From Pinel's remarks inflammation in the brain has been found in all cases of ataxic fever ; and the other viscera have been inflamed in fevers, which were not of that description. This certainly has not yet been made to appear ; but the committee are disposed to consider this doctrine as not materially incorrect.

If some cases occur which come under the description of ataxic fever, and in which not the brain but the other viscera are found to have been inflamed, an explanation may be found by reference to the laws of sympathy. In cases of this description the inflammation has more commonly been found in the addominal than in the thoracic viscera ; and it is well known that morbid sympathy is more commonly remarked between those viscera and the brain than between the thoracic viscera and the same organ. But the committee do not wish to urge this doctrine too far. It is certain that in a vast many cases of ataxic fever the brain has been found diseased ; and on the other hand that where the brain has been found diseased the fever has commonly been ataxic. But the same connexion sometimes, although much less generally, has been found between fever of this description and local affections within the thorax and abdomen. The subject must be considered as under investigation, but certainly not yet made perfectly clear. To elucidate it are wanting numerous accurate observations on the living and on the dead. Observations sufficiently numerous can be made only by the joint labours of many. But let every one recollect how many valuable observations already made are lost to us, and what is worse, serve oftentimes only to perplex us, because they have been recorded imperfectly and inaccurately.

The application of the doctrines, which have been stated, to the epidemic under our consideration is only general. In examining individual cases we find great variety of character. It is probable that there have occurred cases of pure fever, synochus and typhus, both mitior and gravior ; cases of fever complicated with inflammation of the brain ; and cases of such inflammation alone, not combined with fever. Perhaps we should add that in some cases the facts shew only a great turgescence of the cerebral vessels, not accompanied with inflammation. The inflammation also has varied in its character, and has been phlegmonous, erysipelatous, or frequently intermediate, the erysipelatous character predominating.

It probably also happens that in some cases fever terminates in local inflammation ; and perhaps inflammation in fever. Undoubtedly in some cases the one disease commences alone, and the other supervenes and combines with the first. —This is very common in malignant epidemic fevers ; and hence the patient does not at first, perhaps not for some days, appear to be affected with a severe disease ; when suddenly there ensues great prostration of strength with symptoms of cerebral affection.

Intermittent fevers are not prevalent among us ; and probably owing to that circumstance we attend less to remission in fever than physicians in most other climates, who are in the habit of distinguishing the paroxysms of fever. The committee have not any information respecting the general character of the disease under consideration in these respects. It would seem however from some cases communicated to us and from casual remarks that it has remissions, although they may not be of any regular type ; in

In some instances there is reason to suspect that these remissions have amounted almost to intermissions. Where the fever has had periods of remission or intermission, these may have been less observed because the symptoms of inflammation have continued.\*

#### CAUSES.

Respecting the predisposing cause of this disease the committee cannot offer any remarks that are satisfactory to themselves. The following circumstances only we know respecting it; viz. that it has been in operation since the winter of 1806, to the present time; that its operation extends over a very considerable portion of country; that after ceasing to operate in one part of the country it commences its action in another; that the portions of country in which it produces its effects are very various as to soil and elevation; that the seasons in which it is produced have been of different characters as to temperature and moisture; and that it has been most powerful from midwinter till the latter part of spring. The suggestions that bad grain has been in any measure influential in producing this disease are not corroborated by any evidence before the committee. Shall we with Sydenham confess our ignorance, by referring the predisposing cause to some secret peculiarity in the constitution of the atmosphere?

Something more is known respecting the exciting causes. These are the same which operate in all cases, when epidemics prevail which are not contagious. Errors in diet, exposure to sudden changes of temperature, or to damp air, fatigue, watching, anxiety of mind, and in short any cause,

\* See Fordyce on irregular intermittents.

which in a time of health will produce a slight derangement in the system, will during the existence of epidemic which is not contiguous, operate as an exciting cause. In other words the predisposing cause affects all, or a certain portion of, the members of the community in such a way, as that whenever the ordinary functions of the system are interrupted, in any considerable degree, such persons become affected with the prevailing disease. It is in consequence of fatigue and anxiety that the attendants on the sick often become affected with the prevailing epidemic ; but in such cases the disease is often thought to be produced by contagion.\*

The committee do not make these remarks merely in conformity to general principles entertained by them, although that conformity exists ; they are founded on the observations of their correspondents.

The committee have gone as far in analyzing the disease, as facts will warrant them. They will not add any thing respecting the proximate cause ; for that would engage them in the investigation of the proximate causes of fever and inflammation, subjects which have more frequently been discussed, than illustrated.

Respecting the causes of symptoms they may have occasion to make some remarks in considering the method of treatment ; they wish not to make any, which have not for their object immediate practical utility.

#### METHOD OF TREATMENT.

A few remarks will be made introductory to the indications of cure ; but these will be stated, and the means of fulfilling them briefly pointed out ; and then the different

\* See Adam's Inquiry into the laws of Epidemics.

remedies to be employed and the circumstances, which should regulate their employment, will be more particularly considered.

In some cases of this fever the immediate destruction of life is threatened in the first stage, in consequence of pressure upon the brain. This pressure is produced by congestion of blood in that part.

In other cases life is threatened by inflammation of the membranes covering the brain and lining its cavities, accompanied by a more slight congestion. This inflammation may destroy life in consequence of the irritation communicated to the whole system by the affection of so important an organ ; but more commonly by the effusion, which it occasions, producing pressure on the brain.

These dangers are increased by the combination of fever with inflammation, by which the system is rendered less able to produce a natural cure, and which embarrasses the physician in adapting remedies to the disease. There is in addition some risk of life from the fever alone ; but this is not considerable.

In a large proportion of cases the dangers, which have been described, do not exist at all, or only in a slight degree.

When congestion in the brain exists, the first indication is to diminish the quantity of blood in that part. This is to be effected if possible by inducing contraction in the vessels of the head, and dilatation in those of the trunk and extremities. For this purpose cold applications are to be made to the head, and those which are warm and moist to the body ; and at the same time, if there be great depression of strength, very mild cordials may be administered. Where

however the pressure on the brain is very great, blood should be drawn from the jugular vein.

When there exists inflammation within the cranium, without any considerable pressure, the first indication is to discuss the inflammation, so as to leave the patient affected with simple fever. This indication it is difficult to fulfil : for although we separate the diseases in our own minds, and although in a certain sense they have distinct existences, yet they are combined in one and the same system, and probably are modified each of them by the other. We may indeed sometimes relieve both at once, but we may also, while we relieve the one, increase the danger of the other. To fulfil this indication the same remedies may be adopted, as stated above to relieve congestion ; and, in addition, the forehead, the back of the neck, and even the whole head should be blistered. Bleeding however should not be readily practised in this case, unless the inflammation approach the phlegmonous character ; nor will it often be admissible in this case to use cordials. Preparations of quicksilver, will also be useful in attending to other indications, will be beneficial with regard to this.

The second indication is to interrupt those actions which belong to the fever, so as to restore the actions of health. This indication will oftentimes be fulfilled by the treatment already proposed. In addition, preparations of quicksilver may be exhibited, until an effect is produced on the mouth. In some cases emetics may assist in attaining the purpose here proposed.

The third indication is to support the strength of the patient while going through the disease. To which end all evacuations should be avoided, which are not absolutely necessary, unless there is good reason to believe, that the dis-

ease may thereby be cured, or materially diminished. Also such nourishment should be given as the stomach will bear with ease.

The fourth indication is, when the disease has subsided, to restore vigor to the system exhausted by the fatigue of unusual exertions, by unusual evacuations and by want of nourishment. This indication is to be complied with by administering tonics and nourishment; at the same time all exertions, which cannot very easily be borne, should be avoided. Each of the remedies mentioned, and such others as may be deemed important will now be separately considered.

#### EVACUATIONS.

It has been the practice of almost all physicians to make some evacuations from the body, in the commencement of acute diseases. It would seem that experience must have been in favor of this practice, or it would not have been so universally adopted. As to the mode of evacuation and the extent to which it should be carried, there are no doubt various opinions. But in ataxic or malignant fever, many physicians have thought all evacuations injurious, while others have advised them to be very profuse. It is certainly true, that evacuations must not be wantonly or indiscriminately prescribed in this disease; but when they are made for certain definite objects, and regulated in their extent by a regard to those objects, they may be highly beneficial. The objects to be had in view will be stated under the heads of the particular evacuations.

#### BLOOD-LETTING.

The effects of this evacuation are not always the same, and the mode in which it operates is not well agreed upon.

It has been supposed to lessen the actions by removing a stimulus. By taking away the stimulus of distention, when that exists, it may operate generally to lessen action. But when the vessels do not suffer greater distention, than they bear with ease, taking away blood from them has been supposed to increase their action. The explanation which has been given of this effect will be stated.

The blood vessels always contract to their contents, so that they are always precisely full. Their elasticity constantly tends to make them enlarge their capacity,\* and their contraction is produced by their muscular power. When blood is drawn from the vessels, this power is exercised at the expense of the rest of the system. The effects vary somewhat according to the mode of drawing blood. If it be drawn from a large vessel, in a full stream, the vessels are obliged to act suddenly; whereas if the blood flow from a small vessel, and slowly, the contraction of the vessels is more gradual, and an effect more lasting, but less powerful and immediate, is produced. The consequence of this exertion of the blood vessels is to diminish the strength of the system, and lessen the force of action in other parts of the body; more especially in any portion of the sanguiferous system, which is undergoing inordinate action. Hence the effects of bleeding, when phlegmonous inflammation exists in any important part of the system.

When the vessels act feebly, when the pulse is small and frequent, blood-letting in general is not admissible upon the

\* Perhaps this is not true as to particular vessels when very extraordinary distended; but it is true as to the blood vessels generally in any state in which they can all be at the same time; for they cannot all at one time be so extraordinarily distended; there is never sufficient blood in the body for this purpose. See Foidyce's practice of physic, part I. article *blood vessels*, for the doctrines here stated.

principles, which have been laid down. There is however at least one exception to this rule. If under these circumstances, as regards the action of the vessels generally, there exist a local plethora, or what has been called congestion in any part, letting blood from the vessels so affected may become necessary. This sometimes occurs in the vessels of the tunica conjunctiva, and by dividing them that part is relieved. When so small a quantity of blood is effused, as is necessary in this case, the system does not suffer from the loss, and is relieved by the removal of the local disease. But when it is a larger part and when larger vessels are affected in this way, the loss of the blood, which is drawn to relieve them, may produce too much weakness in the system. In this case the danger from the local affection, and from the loss of blood to the system must be carefully weighed ; and it is only, when the former danger is great and imminent, that the evacuation can be authorized.

The committee beg indulgence while they consider more minutely the effects of congestion in the brain. It sometimes happens that a determination of blood takes place to the head from causes, which the committee presume not to ascertain. The arteries going to the brain throw the blood upon that part faster, than it can be carried off by the veins ; or the veins cease to carry off the blood as fast as usual, although the quantity which is brought be not unduly increased. In whichever way it happens, the vessels become so full, that they cannot contract with sufficient force to relieve themselves from the mass of blood which they contain. In consequence the brain suffers from pressure ; its functions are more or less interrupted ; the muscles of respiration, which are known by experiment to be influenced by the ce-

rebral system, are partially paralyzed ; the mechanical office, which belongs to them, is not performed ; the lungs do not receive their usual supply of fresh air ; the blood does not undergo its usual changes in the lungs from the action of the air ; the left ventricle of the heart and the whole body is supplied with blood more or less nearly resembling that, which is ordinarily found only in the veins of the body and in the pulmonary arteries ; every part of the body is in consequence weakened ; and if relief be not shortly obtained, death ensues.\* In proportion to the power of the cause these effects take place in a greater or less degree.

In circumstances such as have been described the patient lies comatose or convulsed ; the respiration is distressed, stertorous as in apoplexy, or anxious, feeble and convulsive like that of an animal in an exhausted receiver, the circulation is very imperfectly performed, the whole body is cold, more especially the extremities, the skin becomes grim, and livid, particularly in the face ; or when the pressure is most sudden and violent the face swells and becomes almost black, and the respiration and whole appearance is like that of a person who is strangled.

Under these circumstances, in proportion to the violence of the case, different remedies are applicable, for here " difference in degree constitutes difference in kind." When the pressure is great, if a blood vessel be opened, and evacuation do not relieve the pressure, it sinks the patient. The vessels, in the trunk and extremities, must contract to their contents, and by this exertion the little remaining strength of the system is exhausted. But if the pressure on the brain is relieved, the respiration becomes free, and the whole ma-

\* See Bichat on life and death.

chine begins to perform its customary motions. The immediate danger is averted, the sensibility and irritability, which were almost lost, are now recovered, the circulations become more regular, and remedies can be applied to complete the cure. Whatever may be the strength of the system, it can better bear the removal of the superfluous blood in the head, than it can bear the interruption of its functions, arising from the pressure of that blood. The object is to take off that blood, which is superfluous in the head, without producing a sudden prostration in the system, before it has time to be benefited by the removal of the pressure. Here the head and the other parts of the body are to be considered as in some measure disjointed. If a vein be opened in the arm, it will not relieve the head, except through the medium of the general circulation; and the heart and vessels will suffer in a large proportion to the benefit received, and for a few moments before any benefit is received. The effects during those moments may be fatal. If the quantity taken be not enough to give any relief, or if it be more than is necessary for relief, the injury to the system may be such as to produce death. But if a vein be opened, which immediately communicates with the cerebral vessels, such as the external jugular vein, the pressure is immediately removed from the head, and the general relief is such as to counteract all the evils of loss of blood to the system.

From the foregoing considerations, which have been stated briefly as the nature and importance of the subject will admit, it appears that there may be two, and those very different states of the system in this disease, in which it may be proper to let blood. The first is when there is phlegmonous inflammation, or such as approaches nearly to that

character, affecting the brain and its membranes. Here if the symptoms be not violent, other remedies may suffice ; but if they are, if the pain in the head be severe, if the functions of the whole animal system be very much interrupted, and at the same time the skin be hot and the pulse hard, the case is dangerous ; we have then to apprehend that such effects will be produced within the cranium as will destroy life, before we can arrest the disease by other remedies. In this case, the violence of the inflammation must be reduced by bleeding. It is not comparatively very important from what part the blood is taken for this purpose. It would however be best to take it from the jugular vein, because that communicates immediately with the vessels of the part affected ; and probably a given quantity of blood, drawn from that vein, would afford more relief than if drawn from the arm. When from any cause that vein cannot be opened, the operation may be performed on the temporal artery. From whatever vessel the blood is taken a large orifice should be made, that the effect may be as sudden as possible, so that a smaller quantity may suffice. Probably from ten to twenty ounces would be sufficient in most cases.

The second case, in which blood should be evacuated, is that which has already been described, in which the brain is suffering pressure from the fullness of its vessels. Here it is very important that the blood be drawn from the external jugular in preference to a vein in the arm, for reasons which have also been suggested. The orifice in this case also should be large, that the relief may be as immediate as possible. At the same time it is important to avoid producing faintness, that the general system may not suffer too much, before it has derived the benefits of the operation. Several

attentions may prevent this effect. Cold applications should be made constantly to the head and face during the bleeding to excite contraction of the vessels in that part, and thus supply blood to the rest of the system; those cordials, whose action is sudden and transient, should be administered at the same time if any faintness be perceived; and in this case the flow of blood should be stopped until the faintness has subsided; then if relief is not obtained, the evacuation should be continued.\* With these precautions the blood should be allowed to flow until it is obvious that some relief is obtained. To maintain the advantage which has been thus procured, other remedies should be immediately employed, such as will shortly be noticed.

To adduce authorities in favour of blood-letting in this disease would be useless; for authorities may be quoted on both sides. Sydenham lamented the use of the word malignant, as descriptive of any species of fever, and said that it had occasioned more deaths than the sword. He believed that this slaughter was occasioned by the use of alexipharmics, which had been considered appropriate to malignant diseases, while evacuations were too much neglected. On the other hand, Huxham and many others thought that Sydenham was influenced by prejudice in transferring his practice in inflammatory diseases to those, which were malignant, and in which the strength of the system was prostrated by a secret cause. Perhaps their differences of opinion may be explained if that adopted by the committee be correct.

\* It has not been very common here to open the external jugular vein, but the operation is very simple. The pressure is made by the thumb of the operator placed on the vein where it passes near the mastoid muscle just above the clavicle.

When the visceral inflammation is phlegmonous or nearly so, it is well agreed that bleeding may be very advantageously instituted. When it is purely erysipelatous, and in addition to the weakness produced by the fever, there occurs the peculiar prostration, which accompanies inflammation of this character, it may sometimes be necessary even to exhibit powerful cordials for a season, lest death should be produced by sudden faintness. But if this prostration be caused by great pressure on the brain, death must shortly ensue. Here it is not "a pack on the back" which must be removed; it is a pack on the head, which is not only too heavy to be borne, but whose pressure destroys in great measure those properties in the living system on which we operate to excite more vigorous action. In such a case it is not inconsistent to open the jugular vein, while we exhibit even the most powerful cordials.

In cases where it is not necessary or might be injurious to let blood from a large vein, the head may derive some relief from cupping or leeches. The former is the most expeditious mode of local bleeding, and is therefore preferable.

#### EMETICS.

Emetics are administered in the commencement of fever for two purposes. The one to produce an evacuation of any offensive substances in the stomach. The other to produce a strong impression on that organ, and in consequence of the sympathy between that and all other parts of the system to effect a change in all the organic actions.\* By this

\* For organic actions, or actions of the organic system see the divisions of Bichat before referred to. Generally the organic system comprehends all parts of the body except the brain and parts dependant on it as to functions.

change the motions of the disease are interrupted. With both intentions they are often very advantageously employed. For the first purpose they should be employed in this disease, whenever the symptoms of offensive substances in the stomach are perceived. For the second they are too often inadequate, and the use of them for that purpose should be avoided, because they occupy important time which cannot be redeemed. It is however in proportion to the violence of the cerebral affection that emetics are contra-indicated. When this affection is slight, they may be useful for the second purpose mentioned, and they should be more readily exhibited, if they are at the same time in any degree indicated on account of the first. Such are the suggestions which the committee venture to offer on this head; but their opinions are not absolutely fixed, and they wish that they may be tested by clinical observations.

#### CATHARTICS.

Cathartics are either such as produce copious fluid discharges from the bowels; or such as occasion only a discharge of the fæces with comparatively very little fluid. In the first case the fluid is furnished from the liver and pancreas and from the intestinal mucus membrane. In this case a determination of blood takes place to the abdominal vessels, or, those vessels in consequence of increased action receive more blood. In the second case perhaps the same effect takes place, but to an extent very much less. Those cathartics, which produce the effects first mentioned are called drastic, and purgative; those, which produce the second, are called laxatives and eceprotics. Certain drastic cathartics, as particularly those which are resinous, increase

the action of the abdominal vessels generally more than others, and also increase the action of the vessels over the whole body.

In most cases of this disease drastic cathartics cannot be employed with advantage. The general system is weakened by their operation much more than the head is relieved. An exception should be made however of those cases, in which the inflammation approaches the phlegmonous character, and in which the sanguiferous system is not yet overpowered in consequence of pressure on the head. In these cases drastic cathartics, combined with submuriate of quicksilver, may be exhibited; for here their effects are salutary in consequence both of their weakening the system generally, and thereby diminishing the violence of action, and of the determination of blood to the abdomen, by which it is diminished in the head. It is proposed to combine the submuriate with the drastic cathartics, on account of the good effects it may have on the whole system, at the same time that it assists in producing an effect on the bowels. It is also useful because it acts on the whole canal from the stomach downwards, which effect is not so perfectly produced by most other cathartics. It does also assist in producing a determination blood to the abdomen, and does not at the same time produce a sudden increase in the general actions of the sanguiferous system, as the resinous cathartics often do.

Laxatives may be more generally employed in this disease, for at all times the system is disturbed if feces are allowed to continue in the intestines for any very unusual length of time; and the disease may invade the system at a moment, when it is already suffering under an incumbrance of this sort. If the bowels are costive, an enema should be ad-

ministered on the first, or at farthest on the second day of the disease, and this more particularly, if the bowels make unavailing efforts to relieve themselves. When they are at the invasion as free as usual, medicines may be given, which will gradually promote their action; for they are very much disposed to be slow in their operations in this disease. For this purpose it is best to employ submuriate of quicksilver in small doses, frequently repeated, because that medicine will at the same time be producing other good effects on the whole system, as will be hereafter mentioned. Where bleeding is to be employed, both emetics and cathartics should be omitted until after that operation.

#### HEAT AND COLD.

The committee will not engage in the contested questions respecting the effects of hot and cold applications to the body; they do not hazard contradiction in asserting that great benefit may result from such applications. In this opinion they are supported by abundant experience; for they feel assured that in cases, which have terminated successfully, and in which none of these evacuations just now discussed, have been made, relief has been most commonly derived from such applications. Under this description of cold and hot applications the committee mean to include those remedies, which reduce the temperature although not cold themselves, such as *ether*, when allowed to evaporate from the surface; and those, which produce or retain heat, although not hot themselves, such as friction, and woollen coverings.

When the head is hot, and even whenever it is not cold on the surface, cold water, ice, and ether may be applied to

it with great benefit. Whatever be the mode of operation, it is certain that such applications occasion a contraction of the blood vessels in the part, to which they are made ; and in this case they cause the head to be freed from pressure, and the rest of the system to receive the blood, which it oftentimes wants. So far as such remedies produce an effect, they are far preferable to bleeding ; as it is better to heal a diseased limb than to amputate it. When they are not competent to entire relief, they will very much assist both during and after blood-letting.

In a large proportion of the cases of this disease the temperature of the surface of the body, and particularly on the limbs, is reduced. In such cases, and even when the temperature of the body is natural, great advantage is derived from warm and moist applications to the surface. Such applications increase the fulness of the vessels of the skin ; and as the extent is great, they operate powerfully in relieving the pressure of blood in the head. They also produce diaphoresis and perhaps some benefit is obtained from this evacuation ; but this effect, as it appears to the committee, is much less important than that above mentioned. The mode of making such applications has been described in stating the method of treatment which has very generally been adopted in the county of Worcester. One caution is however necessary ; viz. that the surface be not so much heated, as to increase to undue violence the general actions of the sanguiferous system.—A pleasant warmth and a gentle moisture of the skin are sufficient. There is not any part of the treatment of ataxic or malignant fever, in which practitioners are so universally agreed, as in this of promoting diaphoresis. It is also agreed that the sweating should be continu-

ed for a considerable length of time, to obtain from it all the benefit it can afford. On this point there has perhaps been an extravagance in the opinions entertained. But no doubt gentle diaphoresis may be continued for twenty-four or even for forty hours with advantage. It is necessary during this time, to watch the patient that he may not become too warm, and that he may not be too much exhausted. Profuse sweating is to be most carefully avoided.

#### VESICATION.

The utility of vesicating the head, or the parts near it, is very highly estimated by all, who have adopted this practice. To derive from it all the advantages it can afford, this practice should be instituted in the very earliest stage of the disease. In every case, where the symptoms of affection of the brain are of considerable violence, the head should be immediately shaved. This renders it more easy to abstract heat from the head, where that is necessary. When it is not, or when it has already been done, a larger or smaller portion of the head should be immediately vesicated. While cold applications are made to the head, the back of the neck, the forehead and temples may be vesicated. It is important to produce the vesication as speedily as possible ; for this purpose the strong tincture of cantharides should be well rubbed upon the parts to be blistered until a very considerable redness is produced ; the plaster of cantharides should then be applied, and the part should frequently be examined, lest in the tossing about of the patient the plaster be removed.

Advantage may be derived from blistering the extremities also, when the vascular action is feeble, and the skin cold.

Under this head may also be recommended *sinapisms* and *rubefacients* to the feet, and other parts of the extremities.

## PREPARATIONS OF QUICKSILVER.

In reporting the mode of treatment, which has been adopted by their correspondents, the committee mentioned the use, which has been made of the submuriate of quicksilver. In cases where life is immediately threatened, this remedy cannot be relied on to avert the danger. But in cases of less severity, or where the most urgent symptoms are removed by other remedies, this is of great value. It may be exhibited in doses of one to three grains, once in two to six hours, until it produces an effect on the bowels; the doses may then be diminished, or exhibited less frequent, and it may be combined with small doses of ipecacuanha and opium. In this manner it may be continued, until an effect is produced on the mouth. This effect should not be allowed to increase to any violence, but should be maintained in a very low degree, until all symptoms of disease have subsided. The utility of this practice has been sufficiently tested by experiment. It is the same which is found useful in many other acute diseases. It need not be employed to the exclusion of any remedies, which are immediate in their effects, and which the urgency of the case may require.

The committee presumes that they should not promote the use of this remedy by discussing the mode, in which it gives relief. They consider it, when affecting the system, as an alterative; an alterative not of the fluids of the body, but of the actions of the minima vascula. It is therefore directed to fulfil the second and third indications.

When the submuriate is not easily borne by the stomach, or when it is too slow in its effects, the ointment of quicksilver may be applied to the external surface of the body, and to the parts which have been vesicated. A drachm may be

rubbed on the skin once in every three or four hours until sufficient effect is produced.

### CORDIALS.

Under this name are comprehended those articles, of which the effects are immediate or nearly so, which produce warmth in the stomach and over the whole body, and which increase in force and frequency the actions of the heart and large vessels.

Respecting the utility of such articles in the disease under consideration there has been a division of opinion among practitioners of medicine. There is perhaps a popular bias in favour of their administration. Their effects are obvious, often comfortable for the moment, and, under certain circumstances, salutary. When liberally and indiscriminately administered in this disease, they are very injurious by increasing the force with which the blood is thrown on the head, or other parts in which there exist either inflammation or congestion; and they are injurious by suddenly increasing the heat and the vascular actions generally, and thus unnecessarily exhausting the energy of the system by imposing on it useless labour.

The very liberal use of cordials has been very fully tried during the last three years in Connecticut, and also during the early part of the spring in the county of Worcester. The committee have reason to believe, that a considerable proportion of the most judicious practitioners in those places are now fully convinced, that this practice is highly injurious. This is the case with some, who had adopted and for a time continued it with the most sanguine expectations of benefit, and probably with some of those, on whose communications our former statement was founded.

There are however occasions, on which cordials may be administered in this disease with advantage. At the time when the actions of the system are almost arrested in consequence of pressure on the brain, cordials may be required to keep the heart in motion. The patient is ready to faint, and if the actions cease for a moment death may ensue. At such a time we must not hesitate to follow the dictates of nature, and excite increased action at any hazard, until we can gain time to adopt more effectual measures. It is possible even that by cordials administered under such circumstances we may excite the cerebral vessels to stronger contractions and thus relieve the brain; but the chance is much greater, that by the liberal exhibition of such articles we shall increase the flow to the head, while by distention we lessen the power of the vessels there to contract. In this way either sudden death, or effusions and more distant, but scarcely less certain injury is produced.

The careful exhibition of cordials may even be necessary at the very moment, while we are letting blood. However absurd this may appear to theorists, the practice is not inconsistent. An attempt has already been made to explain the necessity of it. In diseases much more slight we frequently apply heat to the feet, and abstract it from the head; a practice which except from habit would seem equally absurd.

In the late stages of this disease, when evacuations can no longer be made with advantage and when the energy of the system is very much exhausted, cordials may be useful. Here it is true they must be used without regard to quantity, and be measured only by effects. Yet care should be

taken that those effects be not great. Action must indeed be maintained at any expense, for without action life will soon cease ; but it must be remembered that life may be maintained by very feeble action, and that we defeat our own object, when we increase the action beyond the power to support it.

In all cases the mildest cordials competent should be employed. External applications, so far as they can be substituted for cordials, are always to be preferred. Tonics also are to be employed in preference, when it is not necessary to produce an immediate effect.

Under this head perhaps some remarks should be made on the use of opium. The committee will offer a few and those only which are practical. If the patient is cool, opium is useful in the early stage of the disease when attempting to produce diaphoresis ; its property of producing this effect is well known. It is also useful at that time, when there is great morbid irritability with tossing about, whereby the benefit of other diaphoretics is prevented. The doses required for these purposes may sometimes be large ; but in general they should be small and repeated until they produce the effects desired. The committee cannot restrain the apprehension that some of the evils attributed to this disease have been aggravated, if not sometimes produced, by the too liberal use of opium and ardent spirit. In cases of violent spasms, after blood-letting, large doses of opium are unequivocally necessary. Such cases are however rare.

#### TONICS.

The bark of the *officinal cinchona* may be administered as soon, as the immediate danger from pressure on the brain is

removed, and any considerable remission of fever takes place. On this point the committee have not been able to learn sufficiently the results of experience in the late epidemic. By some respectable physicians the *cinchona* has not been thought useful. In similar diseases the practice recommended has been found very beneficial. One very respectable physician thought chalybeates particularly serviceable under the circumstances described. Another who has distinguished himself by his judicious treatment of this disease, states that the preparation, commonly called Fowler's solution of arsenic, has fulfilled very perfectly the indications under the same circumstances. We have recently received a confirmation of this opinion from another very respectable source. These observations cannot be stated as conclusive, but deserve attention.

Arsenic was employed in the early stage of the disease at Medfield in 1806, with apparent benefit, and has been used in various instances since, as it is said, not without advantage. But the committee are not acquainted with so many and so accurate observations on this subject, as to enable them to form an opinion respecting it; nor are they satisfied, under what head it should be ranked, if its effects are salutary.

#### DIET.

The general rule respecting diet in acute diseases applies to that under consideration. This rule is to supply the stomach with the most nutritious food it can digest without labor to itself or irritation to the rest of the system. It may indeed be necessary to make some exceptions to this rule in the first days of acute diseases, at a time when evacuations are usually made; but this exception it is not very im-

portant to regard, as in severe diseases the stomach will not bear much food at that time, agreeably to the conditions stated above. In this disorder it is said, that the appetite and powers of digestion are often greater, than in most other acute diseases. On the appetite we cannot place full reliance in a disease, in which the sensibility is so variously and irregularly affected. But when the powers of digestion appear fully adequate to the purpose, not only the usual farinaceous nutriment, but even animal decoctions, broths and soups, may be given with advantage. It must not however be forgotten that the system can bear rather less nourishment, than the stomach would be capable of digesting, more easily, than it can bear the irritation and fatigue, produced by loading the stomach with a greater quantity of food, than it can easily convert into chyle.

In suggesting their ideas respecting the mode of treatment the committee have sometimes gone into detail, and have sometimes given only very general opinions. The reasons for so doing will probably appear obvious to the counsellors. One of them was their desire to curtail as much as possible a report, which has extended to a greater length, than had originally been contemplated. The committee are fully sensible that much might now be added, and that much might be amended.

THOMAS WELSH,	} Committee.
JAMES JACKSON,	
JOHN C. WARREN,	

*Boston, June 20th, 1810.*



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